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(54) Title: IMMUNOGENIC PEPTIDES FRAGMENTS OF XAGE-1

(57) Abstract: XAGE-1 is a gene expressed in a number of important human cancers, including prostate cancer, lung cancer, breast cancer, ovarian cancer, glioblastoma, pancreatic cancer, and melanoma. It has now been discovered that peptides of fifty or fewer amino acids comprising the sequence  $X_1X_2X_3PSAPSPX_4$  (SEQ ID NO:5), where  $X_1$  is any amino acid and is preferably G or Y;  $X_2$  is selected from the group consisting of L, M, A, I, V, and T, with L and M being preferred;  $X_3$  is a hydrophobic residue, M or A; and  $X_4$  is V, M, L, A, I, or T, and is preferably V, bind to the HLA-A2 MHC class I molecule, and can be used to raise immune responses to XAGE-1-expressing cancers. In some embodiments, the P at position 7, the S at position 8, or the P at position 9, can be omitted to create a 9 amino acid peptide. The invention provides immunogenic peptides, nucleic acids encoding them, vectors comprising the nucleic acids, uses of the peptides and nucleic acids for manufacture of medicaments, methods of using the peptides and nucleic acids, and compositions of the peptides or nucleic acids in pharmaceutically acceptable carriers.